

# Role of Demographic Variables in Investment Decisions

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## ABSTRACT

Investment behaviour of an investor is strongly influenced by his/her risk tolerance level. However demographic characteristics of the investors drive their risk aptitude. Present study aims at investigating the critical role of demographic variables of age, gender, income, marital status, educational qualifications and occupation on risk tolerance level of investors. An instrument developed by Gomez-Mejia and Balkin (1989) is used to measure the risk aversion level. To interpret the results, the scores were evaluated by the theory developed by Barsky et al. (1997) is used. Regression analysis is used to investigate the relationship between above mentioned demographic variables and overall risk tolerance level, high risk tolerance level and low risk tolerance level of investors with respect to investment behaviour. The results of the study indicate that the dynamic role of demographic variable in present scenario is influencing the risk tolerance and aversion aptitudes to a large extent. The regression results indicate that demographic variables of age, gender, income and marital status have a significant relationship with overall risk tolerance level. The results of the study gives valuable insights into investor's risk tolerance level which can be used to make necessary changes in portfolio management strategies.

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## 1. Introduction

Investment behaviour of investors is an area of great interest for researchers from last few decades. Investment involves allocation of funds in various avenues with the hope of stretching and expanding the financial power with high returns and payoffs. Traditional theories of investment presume that the basic attribute of an investor is rationality (Von Neumann and Morgenstern, 1944). But with growth advancements in financial sector and knowledge domain of investors, the behaviour depicted by investors is dynamic and unpredictable to an extent. It is highly affected by numerous factors present in the financial spectrum that can be intrinsic as well extrinsic in nature.

Investors take investment decisions in dilemma about the risk and return profile of various avenues. There are numerous of studies focusing on availability of different avenues of investment (Geetha and Ramesh, 2011). Also, there is a pool of literature that explores the factors that influence investor's behaviour and their preferences among various investment choices (Chambers and Schlagenhauf, 2002; Gomes, et. al, 2004; Kesavanet al., 2012). Behaviour of investor is influenced by number of factors that include personality attributes, socio-psychological and demographic factors to name a few. Investment decision of investor is also related to his/her capacity of bearing risk and the attitude towards risk. Risk attitude of investor determines the investment style that gives preference to some specific investment options over others (Bali et al., 2009; Fellner and Maciejovsky, 2007; Hunter and Kemp, 2004). Key factors determining the risk attitude and investment decision identified by many researchers are personality traits, emotional stability, knowledge and experience and many more (Corter and Chen, 2005; Grable, 2000; Hunter and Kemp, 2004; Young et al., 2012). Picking the thread from the studies conducted by Achar, 2012, Jain&Mandot, 2012; Jamshidinavid et. al., 2012; Geetha& Ramesh, 2011, the present study

focuses on the relationship between various demographic variables and overall risk tolerance. Risk tolerance is one factor that determines the combination of investment options in a portfolio which is most favourable in terms of risk and return according to the needs and requirements of the individual (Droms, 1987).

Lewellen et al. (1977) concluded that there is a significant relationship between risk tolerance level and demographic variables like age, gender, income etc with respect to investment choices. Further the study conducted by Mittal and Vyas (2009) explored impact of several demographic variables on overall risk tolerance. He explained that higher income investor prefer to invest in high risky investment options like mutual fund and equity market whereas investors with lower income prefer to invest in low risky investment options like post office schemes. He also concluded that male investors prefer risky investment options as compare to their female counterparts. Regarding the factor of age, the study found that young investors prefer risky investment choices as compare to the older investors. Educational level also proved to be positively related to the risk tolerance of investors in investment decisions. Occupation also plays an important role in influencing the investment decisions of investors.

The purpose of present study is to explore the impact of demographic variables of age, gender, income, marital status, occupation and educational qualification on overall risk tolerance of investors. The study will provide insights about the behaviour of investors in building preferences among various investment options depending upon their demographics.

## 2. Objectives of the study

1. The main objective of the study is to explore the impact of demographic variables on overall risk tolerance with respect to investment decisions.

- The study also intends to investigate the relationship of demographic variables with varied levels of risk tolerance represented by investors.

24-28	Average
29-34	Above Average/High
35-40	Very High

### 3. Hypothesis of the study

- H<sub>0</sub>1: Age has no significant effect on overall risk tolerance levels of investors
- H<sub>0</sub>2: Gender has no significant effect on overall risk tolerance of investors
- H<sub>0</sub>3: Marital status has no significant effect on overall risk tolerance of investors
- H<sub>0</sub>4: Income level has no significant effect on overall risk tolerance of investors
- H<sub>0</sub>5: Educational Qualification has no significant effect on overall risk tolerance of investors
- H<sub>0</sub>6: Occupation has no significant effect on overall risk tolerance of investors
- H<sub>0</sub>7: Demographic variables has no significant effect on high risk tolerance levels of investors
- H<sub>0</sub>8: Demographic variables has no significant effect on low risk tolerance levels of investors

### 4. Research Methodology

The assessment of overall risk tolerance considers the attitudinal element of risk as well as extent of relative risk aversion. Overall risk tolerance is the inverse of risk aversion (Barsky et al., 1997; Hanna and Chen, 1997; Hanna et al., 2001; Faff et al., 2008).

$$\text{Tolerance} = 1/\text{Aversion} \times 100$$

It implies that high risk tolerant investors usually hold a higher ratio of risky investment options as compared to low risk tolerant investors (Riley and Chow, 1992; Grable and Lytton, 1998). In the study, risk aversion has been measured using an instrument developed by Gomez-Mejia and Balkin (1989). This scale was based on the theoretical concept of Slovic (1972) and Gupta and Govndarajan (1984) and uses four items like "I am not willing to take risk when choosing a stock or investment". The scale uses five point Likert type responses ranging from strongly agree to strongly disagree. A high score indicates a tendency to avoid the risk related to investment choices. For interpreting the value of risk aversion, the theory given by Barsky et al. (1997) is used. The indicator is provided in Table (1).

**TABLE 1: Risk Aversion Levels**

Risk Aversion Levels	Interpretation
Higher than 5.9	Very High
Between 5.8-4.4	High
Between 4.3-3.6	Average
Between 3.5-3.0	Low
Below than 2.9	Very Low

For interpretation of risk tolerance, the indicator given by Hair et al. (2008) has been used. Table (2) provides the same.

**Table 2: Interpretation of Risk Tolerance Scores**

Total Points (i.e., Risk Tolerance Scores) Between	Interpretation (i.e., Risk Tolerance Levels)
0-17	Low
18-23	Below Average

To get the demographic profile of the respondents, data was collected on various parameters viz 2 categories of gender (Male,1 and Female,2); Age (20-30 years, 30-40 years, 40-50 years and above 50 years), though no data was received for above 50 years age category. For income three representative levels were taken upto 5 Lacs (1), 5-10 Lacs (2) and Above 10 Lacs (3). In regard to educational level, four categories were used Graduates (1), Post Graduates (2), Doctoral (3) and Professionals like CA, CS, MBBS etc. (4). For consideration of marital status, two categories were used Married (1) and Unmarried (2). Lastly, for occupational groups, five categories were used Service (1), Business (2), Retired (3), Student (4) and Professionals (5), though no data was received for retired respondents.

Based on previous studies conducted by Larkin et al. (2012), Olga (2015) and Mac & Ip (2017) regression analysis is used in the present study. Moreover, in the present study regression is found to be one of the suitable tools that assesses the relationship between variables of the study and helps in identifying the direction of that relationship.

Regression statistics is used to analyse the relationship between overall risk tolerance levels and demographic variables which includes age, income, marital status, gender, educational level and occupation. To further investigate the relationship between demographic profile of respondents and high risk tolerance and low risk tolerance, regression analysis was also conducted separately on obtained data. The mean score of risk tolerance level for the sample is estimated to be 30.144, Following the methodology adopted by Grable and Lytton (1999) and Anbar and Eker (2010), respondents with mean score below 30.144 are categorized as low risk tolerance level investors and respondents with mean score above 30.144 are categorized as high risk tolerance level investors. In total, the sample comprises of 74 respondents, out of which 37 are high risk tolerance level investors (50%) and 37 are low risk tolerance level investors (50%). For computation purpose, high risk tolerance level investors and low risk tolerance investors were coded as 1 and 0 respectively.

The study can be represented in the form of following regression equation:

$$R_i = \alpha_i + \beta_1(AGE_i) + \beta_2(GENDER_i) + \beta_3(INCOME_i) + \beta_4(MARITAL STATUS_i) + \beta_5(EDUCATIONAL QUALIFICATION_i) + \beta_6(OCCUPATION_i) + \epsilon_1$$

Where, R<sub>i</sub> = overall risk tolerance

Similarly the same equation was used to compute regression analysis for High risk tolerance levels and Low risk tolerance level of investors independently.

### 5. Literature Review

#### Risk Tolerance

Risk tolerance refers to a person's attitude towards accepting or restricting risk, is a vital concept that has

implications in financial sector. Risk tolerance can be explained as the intensity of risk the investors are willing to take while taking investment decisions under ambiguity (Hallman and Rosenbloom, 1987). Studies conducted by Schooley and Worden (1996) and Bailey and Kinerson (2005) concluded that there is a strong relationship between risk tolerance and investment behaviour. Also, Investor can assess their level of risk tolerance while making investment choices (Hallahan, Faff and McKenzie, 2004). Further studies argued that investment risk attitude share a strong relationship with the inbuilt riskiness in investor portfolio (Warneryd, 1996; Keller and Siegrist, 2006). The studies also measured the ability of taking risk which helps in their decision to invest in low, medium or high risky investment choices (Warneryd, 2001). Investors who possess the ability to take higher risk preferred to invest in stocks as compare to low risky investors who prefer invest in fixed deposits, mutual funds and other secured options (Warneryd, 2001; Clark-Murphy and Soutar, 2004; Wood and Zaichkowsky, 2004). Moreover, researchers had analyzed that the investment decision is not only influenced by risk tolerance but other factors like level of income and availability of an investment account also plays a vital role (Keller and Siegrist, 2006; Bali et al., 2009). Studies have also investigated that behaviour of investor in risky investment choices can be measured by different factors like risk aversion attitude, tenure of investment, awareness levels, psychological and perceptual biases and societal norms (Lewellen et al., 1977; Kahneman and Tversky, 1979, Chaurasia 2017). Study conducted by Lewellen et al. (1977) found that demographic variables of age, gender, income and education influence investor's attitudes in taking investment decisions. In addition to this a study conducted by Kourtidis et al., 2011 reemphasized that level of risk tolerance is higher in males as compared to females. Results from the study conducted by Selcuk et al., 2010; Grable et al., 2004 indicated that respondents from younger age groups are more risk tolerant than older ones.

### **Age**

It is believed that the level of risk tolerance has a negative relationship with age (Wallach and Kogan, 1961; McInish, 1982; Morin & Suarez, 1983; Palsson, 1996, Riley & Chow, 1992; Bajtelsmit and VanDerhai, 1997, Jiankopolos and Bernasek, 2006, Chattopadhyay&Dasgupta, 2015). This result can be elucidated by the fact that investors from younger age groups have a greater (expected) number of years to recuperate from the losses incurred with risky investments. Other studies in this regard however, reveal evidence of a positive relationship (Grable, 2000; R.kasilingam et al. 2009, Kourtidis et al., 2011) and fall short to detect any significant impact of age on risk tolerance (Wang & Hanna 1997; Grable &Joo, 1997; Grable & Lytton, 1998, Hanna, Gutter, & Fan, 1998; Grable 2000, Hariharan, Chapman, &Domian, 2000; Gollier&Zeckhauser, 2002). Further some studies concluded that there is no significant relationship between investors age and financial risk tolerance (Al-Ajmi,2008, Anbar and Eker 2010, Gumede, 2009).

### **Gender**

Previous studies provide relevant evidence that level of risk tolerance has a significant relationship with gender (Bajtelsmit&Bernasek (1996), Palsson (1996), Jianakoplos and Bernasek (1998), Herrmann (2007)). The studies found that

female has lower risk tolerance as compared to their male counterparts (Bajtelsmit, Bernasek and Jianakoplos (1999), Stendardi et al., 2002, Powell and Ansic (1997), Grable (2000).However, some studies gave a contradictory view that gender has no significant relationship with risk tolerance (Grable and Joo (1999), Hanna, Gutter, and Fan (1998), Schubert et al.1999). Also, a study conducted by Olga and monowar (2015) indicated that females are more keen to invest in risky assets as compared to males. In addition to the above studies, Chattopadhyay&Dasgupta, 2015 reported that female investors are more risk tolerant than their male counterparts.

### **Education**

Education is another demographic variable that is thought to influence an investor's capacity to identify and assess risks associated with different investment choices and therefore lead to higher financial risk tolerance (Baker &Haslem, 1974; Haliassos&Bertaut, 1995; Sung & Hanna, 1996, Chattopadhyay&Dasgupta, 2015). The study conducted by Grable, J. E., & Lytton, R. H. (1999) identified and concluded that the various levels of risk tolerance varies due to investor's level of education and their understanding of various financial instruments. Formally attained education results in higher financial risk tolerance during investments (Sung and Hanna, 1996). Educational level attained and risk tolerance ability were found to be positively related (Kimball et al. 2007, Graham et al. 2009). On the Contrary, some researchers found no significant relationship between education and risk tolerance level (Strydom et al. (2009), Gumede (2009).

### **Income**

Previous literature provides strong evidence regarding the significant relationship between Income and risk tolerance (Friedman, 1974; Cohn et al., 1975; Blume, 1978; Riley & Chow, 1992; Grable & Lytton, 1999; Schooley& Worden, 1996; Bernheim et al., 2001, Chattopadhyay&Dasgupta, 2015). Also the study conducted by Hinz et al., J. A. 1997 and Terry and Parker, 2010 concluded that financial wealth had a positive and significant impact on the level of risk chosen in a portfolio. Higher level of income generates the capacity of bearing the losses associated with high risky investment options (Bernheim et al., 2001, Olga &monowar, 2015, Kannan&Vijayakumar 2015). Alternatively, investors having high income and wealth were found to be more conservative in terms of investing their money while investors with low level of income and wealth may invest in high risky investments with a hope of getting higher returns and payoffs (Bowman ,1982). Also some studies revealed that income has no significant relationship with risk tolerance level (Strydom et al., 2009).

### **Marital Status**

Researches investigating the relationship between marital status and risk tolerance level reveal contradictory point of views. Some studies did not found any significant relationship between marital status and risk tolerance level (McInish, 1982, Masters, 1989; Haliassos and Bertaut, 1995). Married investors tend to maintain a blend of risky and non risky investment preferences in their portfolio (Bernasek&Shwiff, 2001). On the other hand some studies gave evidence that single investors are more risk tolerant as compared to married investors

(Roszkowski, Snelbecker, &Leimberg, 1993, Lazzarone, 1996 Barber and Odean, 2001, Chattopadhyay&Dasgupta, 2015).

**Occupation**

Occupation as a demographic factor also has a relationship with risk tolerance level. According to the MacCrimmon&Wehrung, 1985, investors engaged in business, trade or profession tend to take higher level of risk as compare to the salaried investors. Risk taking ability is also affected by the occupational status; investors from high ranking occupational groups choose more risky investments as compare to low ranking occupational groups (Roszkowski et al., 1993, Barnewall, 1988).

**6. Research Gap**

Demographic profile of investors in India is rapidly changing due to psychographic and socio-economic changes. Also, external liberalisations and financial sector reforms have

influenced the change in distribution of income, consumption pattern, saving and investment decisions. With mushroomed growth of investment avenues and instruments from traditional to innovative ones, the need to study the risk tolerance level of investors have increased manifold.

Number of Indian and International studies has been conducted to identify the relationship between Demographic variables and risk tolerance level of investors but the results have not been consistent with respect to identification of major drivers or influencing factors among demographics and their impact on risk tolerance level.

The inconsistent results from literature where some studies reported significant relationship between demographic variables and risk tolerance levels and some studies reported the contradictory result of insignificant relationship was the driving force that inspired the identification of variables of this study.

**7. Analysis and Results**

**TABLE 3: Descriptive Statistics**

Demographic Variables	Particulars	N	%
GENDER	MALE	43	58.10%
	FEMALE	31	41.90%
AGE	20 -30 YRS	12	16.20%
	30-40 YRS	51	68.90%
	40-50 YRS	11	14.90%
INCOME	UPTO 5 LACS	11	14.90%
	5-10 LACS	17	23.00%
	ABOVE 10 LACS	46	62.20%
EDUCATION BACKGROUND	GRADUATE	21	28.40%
	POST GRADUATE	36	48.60%
	DOCTORAL	13	17.60%
	PROFESSIONAL COURSES- CA,CS, MBBS, LLB	4	5.40%
MARITAL STATUS	MARRIED	51	68.90%
	UNMARRIED	23	31.10%
OCCUPATION	SERVICE	44	59.46%
	BUSINESS	24	32.44%
	STUDENT	2	2.70%
	PROFESSIONAL	4	5.40%

Table 3 shows the demographics of the study, Out of the sample of 74 respondents, 43 are male (58.1%) and 31 are female (41.9%). When respondents are categorized on the basis of age, maximum respondents are from 30 – 40 years (68.9%) of age category. Respondents are also classified on the basis of income, maximum respondents are from income above 10lacs (62.2%). With higher income, investors are able to invest more in different financial avenues. Lower income investors usually have limited funds at their disposal, so it is difficult for them to invest surplus money in different avenues. On the basis of their educational qualification number respondents who are post- graduates (48.6%) is more as compared to other

qualifications (graduates/ doctoral/ professional). The probable reason for this may be the knowledge and proficiency of investors in assessing risk and returns facilitated by higher educational qualification backgrounds. 68.9% of the respondents in the study are married investors and 31.1% are unmarried. Impact of another demographic variable, marital status on risk tolerance is also considered in the study, a sample of Married investor (68.9%) and unmarried investors (31.1%) is taken for same. Respondents from various different occupational groups were taken in the present study, the sample comprised of maximum number of service class

respondents (59.46%) followed by business class (32.44%), professionals (5.4%) and students (2.7%).

**Table 4: RISK TOLERANCE ANALYSIS**

Category	Particulars	RISK TOLERANCE	RISK AVERSION	Comment
GENDER	MALE	30.42	3.3	Low Risk Aversion
	FEMALE	23.81	4.2	Average Risk Aversion
AGE	20 -30 YRS	24.31	4.1	AverageRisk Aversion
	30-40 YRS	30.10	3.3	LowRisk Aversion
	40-50 YRS	40.13	2.5	Very Low Risk Aversion
EDUCATION	GRADUATE	27.26	3.7	Average Risk Aversion
	POST GRADUATE	30.47	3.3	Low Risk Aversion
	DOCTORAL	33.42	3.0	Low Risk Aversion
	PROFESSIONAL COURSEs	31.67	3.2	Low Risk Aversion
INCOME	UPTO 5 LACS	17.86	5.6	High Risk Aversion
	5-10 LACS	24.39	4.1	AverageRisk Aversion
	ABOVE 10 LACS	30.26	3.3	Low Risk Aversion
MARITAL	MARRIED	22.22	4.5	High Risk Aversion
	UNMARRIED	23.48	4.3	AverageRisk Aversion
OCCUPATION	SERVICE	30.60	3.3	Low Risk Aversion
	BUSINESS	28.93	3.5	AverageRisk Aversion
	STUDENT	27.88	3.6	AverageRisk Aversion
	PROFESSIONALs	25.62	3.9	AverageRisk Aversion

Table 4 shows the risk tolerance capabilities of investors on the basis of demographic factors. It is evident from the data that, males have higher risk tolerance attitude towards investment as compare to females. This implies that Males are investing more in high risky investments options as compared to their female counterparts (Hanna and Lindamood, 2004; Al-Ajmi, 2008; Olivares et al., 2008; Gilliam et al., 2010; Faff et al., 2011; 2008, Bhatt et al. 2013). When risk tolerance attitude is investigated on the basis of age, it is found that people above the age of 40 years have high risk tolerance as compare to the younger ones. Investors from the age group 40-50 years have high risk tolerance because at this age they have acquired higher insights into the investment arena and are comparatively better in terms of judgement and choices regarding various investment avenues (Kumar and Korniotis, 2011).

The study found that post graduates, doctoral and professional have same risk tolerance capabilities i.e. all are high risk tolerant. This shows that capability of assessing risks and its benefits might not depend on the qualification. The results are similar to the study conducted by Chattopadhyay and Dasgupta, 2015. Although the results are in contradiction with previous literature (Gilliam and Chatterjee, 2011) that

revealed the fact that higher education leads to high risk tolerance because of their knowledge towards different investment avenues. The study also proved that, risk tolerance capability is related to the income of investors (Anbar and Eker, 2010). Lower income investors are not ready to take higher risk because of their limited source of income (Riley and chow, 1992). On the other hand, higher income investors can take higher risk as they are able to diversify their portfolio by investing in different types of schemes ranging from high risky to zero risky one (Barber and Odean, 2001).

The study also found that married investor has lower risk tolerance as compare to unmarried one. Married investor could have more responsibility of their family and children. Their expenses are higher as compare to unmarried ones (Lease et al., 1977). The study did not reveal any substantial difference in risk tolerance attitude of investors with respect to their occupation. The study found that whether the investor is a businessman or a student or a professional, their risk taking capabilities remains equivalent. Only the service class investor can take higher risk as they might have high knowledge and expertise in market investment avenues (Roszkowski et al., 1993).

**Results of Regression Analysis**

**Table 5: Overall risk tolerance**

Variable	B	Std. Error	T	Sig
(Constant)	27.35	13.31	2.055	0.044
GENDER	-0.072	.037	-1.93	0.047
AGE	0.172	.081	2.14	0.035
INCOME	0.289	.047	6.17	0.000

EDUCATION BACKGROUND	1.903	1.936	0.983	0.329
MARITAL STATUS	-0.206	.082	-2.25	0.014
OCCUPATION	-1.074	1.609	-0.668	0.507

The above Table 5 reveals the relationship between overall risk tolerance and various demographic variable of age, gender, income, educational background, marital status and occupation. Taking into consideration the changing investment behaviour of investors; gender has a negative and significant relationship with risk tolerance level (0.047). This implies that male respondents are more convinced in their investment choices as compared to females who are less risk tolerant. Hence, the hypothesis of gender ( $H_02$ ) having no relationship with overall risk tolerance of investors stands rejected. The study found that age has a positive significant relation with risk tolerance level (0.035); the results are consistent with the theory that older investor can take more risk than younger investor (Grable et al. 1999) and provide evidence that respondents from the age bracket of 40-50 years are highly risk tolerant. Kumar and Kaorniotis, 2011, also gives a possible reason behind the theory that older investors might have attained better knowledge and expertise in their investment choices that makes them more risk tolerant. Hence, the hypothesis of age ( $H_01$ ) having no relationship with overall risk tolerance of investors stands rejected.

Income also has a highly significant relationship with risk tolerance (0.000); as financial ability provides confidence towards exploring various risky avenues of investment; although maintaining an appropriate balance between risky and non risky investment options is desirable. The results are consistent with the studies of Terry and Parker (2002), Bernheim et al. (2001), Barber et al. (2001) and others. Hence, the hypothesis of income ( $H_04$ ) having no relationship with overall risk tolerance of investors stands rejected. Marital status also has significant (0.014) relationship with risk tolerance levels. Previous studies also show that Married investors have more responsibilities as compared to the unmarried ones that make them more

conscious towards their investment choices. Hence, the hypothesis of marital status ( $H_03$ ) having no relationship with overall risk tolerance of investors stands rejected.

The other side of study reveals that the risk taking capability is not affected by the educational background of the investors. Professionals, post graduates, doctorates all show high risk tolerance in the study and the relation is highly insignificant (0.329). This implies that investors make investment choices irrespective of their educational qualification. Hence, the hypothesis of Educational Qualification ( $H_05$ ) having no relationship with overall risk tolerance of investors stands accepted. Occupation on the other side has insignificant relationship with risk tolerance (0.507), this implies that the occupation of the respondents does not play a major role in deciding the investment options. The results are not consistent with previous studies of Roszkowski et al. (1993); Maccrimmonet. al. (1985); Anbar et al. (2010). Hence, the hypothesis of occupation ( $H_06$ ) having no relationship with overall risk tolerance of investors stands accepted. In addition to the above results, the constant is found to be significant (0.044). This indicates that besides the variables undertaken in the study, there are other relevant and impactful factors available in the settings that motivate investors to indulge in particular kind of investment behaviour.

Present study also investigates the relationship between high risk tolerance and demographic variables (Table 6) and; low risk tolerance and demographic variables (Table 7).

**Table 6: High risk tolerance**

Variable	B	Std. Error	T	Sig.
(Constant)	25.272	2.818	8.968	0.000
GENDER	-0.081	0.316	-2.633	0.013
AGE	0.219	0.068	3.23	0.002
INCOME	0.329	0.039	8.24	0.000
EDUCATION BACKGROUND	-0.182	0.445	-0.409	0.685
MARITAL STATUS	0.11	1.131	0.098	0.923
OCCUPATION	0.122	0.359	0.339	0.737

The results of study (Table 6) examining relationship between higher risk tolerance and demographic variables reveals that gender (0.013), age (0.002) and income (0.000) has significant relationship. It is found that gender, age and Income has almost similar results as in overall risk tolerance levels. In case of marital status, results are in contrast from the overall risk tolerance. On the other hand, study has found that high risk tolerance level has no significant relationship with educational background (0.685) and occupation (0.737).

Moreover, the constant is also statistically significant (0.000) in high risk tolerance which means apart from demographic factors other variables are also present and are relevant while taking decision in investment choices.

Hence,  $H_07$ , the hypothesis for significant relationship of demographic variables of age, gender and income stands accepted and for educational qualification, marital status and occupation the hypothesis stands rejected.

Table 7: Low risk tolerance

Variable	B	Std. Error	T	Sig.
(Constant)	3.999	18.18	0.22	0.827
GENDER	-2.412	5.244	-0.46	0.649
AGE	0.192	0.083	2.882	0.049
INCOME	1.413	0.344	4.411	0.000
MARITAL STATUS	0.785	3.608	0.218	0.049
EDUCATION BACKGROUND	5.259	3.277	1.605	0.119
OCCUPATION	0.029	2.88	0.01	0.992

The results of study (Table 7) examining relationship between low risk tolerance and demographic variables indicates that age (0.049), income (0.000) and marital status (0.049) has significant relationship. It is found that age and Income has almost similar results as in overall risk tolerance levels and in high risk tolerance levels. In case of marital status (0.049), results are in contrast from the high risk tolerance but are consistent with the results of overall risk tolerance. On the other hand, study has found that low risk tolerance level have insignificant relationship with educational background (0.119) and occupation (0.992).the results are similar to that of overall and high risk tolerance. However, in this case the constant is not statistically significant (0.827); this depicts that variables in the study are explaining the behaviour of the investor to an extent.

Hence,  $H_08$ , the hypothesis for significant relationship of demographic variables of age and income stands accepted and for gender, educational qualification, marital status and occupation the hypothesis stands rejected.

## 8. Conclusion

The study concludes that the inverse relationship of risk aversion and risk tolerance is dependent on many factors, demographic variables being one major contributing factor. The overall results of present study reveals that demographic variables have a significant impact on risk tolerance. The results confirm that female investors are less risk tolerant as compared to their male counterparts. Married investors tend to be less risk tolerant than unmarried ones. Age of the respondent and level of risk tolerance have a positive relationship with each other. The results are consistent with previous studies that preserve

the fact that higher the income, higher is the risk tolerance level of investor. The study also reveals that Educational qualification and occupation both have no relation with the risk tolerance levels.

The analysis of the relationship between demographic variables and overall risk tolerance levels reveals that gender, age, income and marital status are significantly related with overall risk tolerance. On the other hand, educational qualification and occupations are not significantly related with overall risk tolerance. A detailed investigation of the relationship between demographic variables and high risk tolerance and low risk tolerance was done separately to identify whether all demographic variables have similar impact on investors portraying varied intensity to bear risk. The study found that demographic variables of age and income have significant impact on overall, high and low risk tolerance levels. On the other hand, the result of income having a significant impact is true for overall and high level of risk tolerance and not for low risk tolerance level.

Findings and insights from the present study can be of utmost importance for financial service provider firms wherein different strategies of portfolio management can be identified and implemented taking into consideration the demographic profile of the investor. Also, with changing demographics in today's scenario needs more in-depth studies related to the subject as present study had used limited number of demographic variables and there is still scope of inclusion of more variables in the study. This gives an opportunity to future researchers to include more demographic variables and other socio psychographic variables in their researches.

## References

- Achar, A., (2012). Saving and Investment Behavior of Teachers - An Empirical Study. International Journal of Physical and Social Sciences, Vol. 2, issue 8, pp 263-286.
- Al-Ajmi, J. Y. (2008). Risk Tolerance of Individual Investors in an Emerging Market. International Research Journal of Finance and Economics, 17, 15-26.
- Anbar, A. and M. Eker (2010). An empirical investigation for determining of the relation between personal financial risk tolerance and demographic characteristic. EGE Academic Review, 10(2), 503-523.
- Arano, K., C. Parker and R.L. Terry, 2010. Gender-based risk aversion and retirement asset allocation. Economic Inquiry, 48(1), 147-155.
- Bailey, J. J., & Kinerson, C. (2005). Regret Avoidance and Risk Tolerance. Financial Counseling and Planning, 16, 23-28.
- Bajtelsmit, V. L., & Bernasek, A. (1996). Why do women invest differently than men? Financial Counseling and Planning, 7, 1-10.
- Bajtelsmit, V. L., & VanDerhai, J. L. (1997). Risk aversion and pension investment choices. In: M. S. Gordon, O. S. Mitchell, & M. M. Twinney (Eds.), Positioning pensions for the twenty-first century, Philadelphia: University of Pennsylvania Press, 45 - 66.

8. Bajtelsmit, V. L., Bernasek, A., & Jianakoplos, N. A. (1999). Gender differences in defined contribution pension schemes. *Financial Services Review*, 8, 1–10.
9. Baker, H.K. and J.A. Haslem (1974). The impact of investor socioeconomic characteristics on risk and return preferences. *Journal of Business Research*, 2(4), 469-476.
10. Bali, T., Demirtas, O., Levy, H. and Wolf, A. (2009). Bond versus stocks: investors' age and risk taking. *Journal of Monetary Economics*, 56(6), 817-830.
11. Barber, B. M., and Odean, T. (2001). Boys Will be Boys: Gender, Overconfidence, and Common Stock Investment. *Quarterly Journal of Economics*, 116 (1), 261-292.
12. Barnewall, M. M. (1988). Examining the psychological traits of passive and active affluent investors. *The Journal of Financial Planning*, 1 (1), 70-74.
13. Barsky, R., F. Juster, M. Kimball and M. Shapiro (1997). Preference parameters and behavioral heterogeneity: An experimental approach in the health and retirement study. *The Quarterly Journal of Economics*, 112(2), 537-579.
14. Bernasek, A., & Shwiff, S. (2001). Gender, risk and retirement. *Journal of Economic Issues*, 35, 345–356.
15. Bernheim, B. D., Skinner, J., & Weinberg, S. (2001). What accounts for the variation in retirement wealth among U.S. households. *American Economic Review*, 91, 832–57.
16. Bhatt, K. A. & Bhatt, K., (2013). Effects of Investor Occupation and Education on Choice of Investment: An Empirical Study in India, *International Journal of Finance*, Vol. 29 (4).
17. B.Kannan & P.Vijayakumar (2015). Study on Investor Behavioural Finance in Investment Decision Making – In Tiruchirappalli. *International Journal in Commerce, IT & Social Sciences*. Vol. 2(10), 20-26.
18. Blume, M. E., & Friend, I. (1978). The changing role of the individual investor: A twentieth century fund report. Krieger Publishing Company. Blume, M. (1978). The changing role of the individual investor. New York: John Wiley and Sons.
19. Chambers, M., & Schlagenhauf, D. E. (2002). Household Portfolio Allocations, Life Cycle Effects and Anticipated Inflation. Retrieved May 11, 2014, from <http://mailer.fsu.edu/~dschlage/garnet-dschlage/money.pdf>
20. Chattopadhyay, S., & Dasgupta, R. (2015). Demographic and Socioeconomic Impact on Risk Attitudes of the Indian Investors-An Empirical Study. *Asian Economic and Financial Review*, 5(4), 601.
21. Clark-Murphy, M., & Soutar, G. N. (2004). What individual investors value: Some Australian evidence. *Journal of Economic Psychology*, 25(4), 539-555.
22. Cohn, R. A., Lewellen, W. G., Lease, R. C., & Schlarbaum, G. G. (1975). Individual financial risk aversion and investment portfolio composition. *Journal of Finance*, 30, 605–620.
23. Corter, J. and Chen, Y. (2005). Do investment risk tolerance attitudes predict portfolio risk? *Journal of Business and Psychology*, 20 (3), 369-381.
24. Droms, W. G. (1987). Investment asset allocation for PFP clients. *Journal of Accountancy*, 163, 114–118.
25. Faff, R., D. Mulino and D. Chai (2008). On the linkage between financial risk tolerance and risk aversion. *The Journal of Financial Research*, 31(1), 1-23.
26. Faff, R., T. Hallahan and M. McKenzie (2011). Women and risk tolerance in an aging world. *International Journal of Accounting and Information Management*, 19(2), 100-117
27. Fellner, G. and Maciejovsky, B. (2007). Risk attitude and market behavior: evidence from experimental asset market. *Journal of Economic Psychology*, 28 (3), 338-350.
28. Friedman, B. (1974). Risk aversion and the consumer choice of health insurance option. *Review of Economics and Statistics*, 56, 209–214.
29. Geetha, N., & Ramesh, D. M. (2011). A Study on People's Preferences in Investment Behaviour. *International Journal of Engineering and Management Research*, 1(6).
30. Gilliam, J. and S. Chatterjee (2011). The influence of birth order on financial risk tolerance. *Journal of Business & Economics Research (JBERR)*, 9(4), 43-50.
31. Gilliam, J., S. Chatterjee and D. Zhu (2010). Determinants of risk aversion in the baby boomer cohort. *Journal of Business and Economic Research*, 8(5), 79-87.
32. Gollier, C., & Zeckhauser, R. J. (2002). Horizon length and portfolio risk. *Journal of Risk and Uncertainty*, 24, 195–212.
33. Gomes, F., Michaelides, A., & Polkovnichenko, V. (2004). Wealth Accumulation and Portfolio Choice with Taxable and Tax-Deferred Accounts. Retrieved May 11, 2014, from [http://www.lse.ac.uk/fmg/documents/events/conferences/2005/perspectives/365\\_A\\_Michaelides.pdf](http://www.lse.ac.uk/fmg/documents/events/conferences/2005/perspectives/365_A_Michaelides.pdf)
34. Gomez-Mejia, I. R., & Balkin, D. (1989). Effectiveness and aggregate compensation strategies. *Industrial Relations*, 28, 431–445.
35. Grable, J. and R. Lytton (1998). Investor risk tolerance: Testing the efficacy of demographics as differentiating and classifying factors. *Financial Counseling and Planning*, 9(1), 61-73.
36. Grable, J. E. (2000). Financial risk tolerance and additional factors that affect risk taking in everyday money matters. *Journal of Business and Psychology*, 14, 625–630.
37. Grable, J. E., & Lytton, R. H. (1999). Assessing financial risk tolerance: Do demographic, socioeconomic, and attitudinal factors work. *Family Relations and Human Development/Family Economics and Resource Management Biennial*, 3, 80-88.
38. Grable, J. E., & Joo, S. (1997). Determinants of risk preference: implication for the family and consumer science professionals. *Family Economics and Resource Management Biennial*, 2, 19–24.
39. Grable, J. E., & Lytton, R. H. (1998). Investor risk tolerance: testing the efficiency of demographics as differentiating and classifying factors. *Financial Counseling and Planning*, 9, 61–74.
40. Grable, J. E., & Lytton, R. H. (1999). Assessing financial risk tolerance: do demographic, socioeconomic and attitudinal factors work? *Family Relations and Human Development/Family Economics and Resource Management Biennial*, 3, 80–88.
41. Grable, J.E. (2000). Financial risk tolerance and additional factors that affect risk taking in everyday money matters. *Journal of Business and Psychology*, 14(4), 625-630.
42. Grable, J.E. and R.H. Lytton (1999a). Assessing financial risk tolerance: Do demographic, socioeconomic, and attitudinal factors work? *Family Relations and Human Development/Family Economics and Resource Management Biennial*, 8(1), 1-9.
43. Grable, J., Lytton, R. and O'Neill, B. (2004). Projection bias and financial risk tolerance. *The Journal of Behavioral Finance*, Vol. 5(3), 142-147.
44. Graham J. R., Harvey C. R., and Huang H., (2009). Investor competence, trading frequency, and home bias. *Management Science*, 55(7), 1094-1106.
45. Graham, J. F., Stendardi Jr., E. J., Myers, J. K., & Graham, M. J. (2002). Gender differences in investment strategies: An information processing perspective. *International Journal of Bank Marketing*, 20(1), 17-26.
46. Gumede, V. (2009). Demographic Determinants of Financial Risk Tolerance: A South African Perspective. Unpublished B.Com. Hon. Thesis. Pietermaritzburg: University of KwaZulu-Natal. Pietermaritzburg.
47. Gupta, A. K., & Govindarajan, V. (1984). Business unit strategy, managerial characteristics, and business unit

- effectiveness as strategy implementation. *Academy of Management Journal*, 27, 25–41.
48. Hair, J.F., W.C. Black, B. Babin, R.E. Anderson and R.L. Tatham (2008). *Multivariate data analysis*. Upper Saddle River, NJ: Prentice Hall, 5(3), 207-219
  49. Haliassos, M., & Bertaut, C. C. (1995). Why do so few hold stocks? *Economic Journal*, 105, 1110–1129.
  50. Hallahan, T. A., Faff, R. W., & McKenzie, M. D. (2004). An empirical investigation of personal financial risk tolerance. *Financial Services Review*, 13, 57–78.
  51. Hallman, G.V. and J.S. Rosenbloom (1987). *Personal financial planning*. 4th Edn., New York: McGraw-Hill.
  52. Hanna, S. and P. Chen (1997). Subjective and objective risk tolerance: Implications for optimal portfolios. *Financial Counseling and Planning*, 8(2), 17-25.
  53. Hanna, S., Gutter, M., & Fan, J. (1998). A theory based measure of risk tolerance. *Proceedings of the Academy of Financial Services*, 10–11.
  54. Hanna, S.D. and S. Lindamood (2004). An improved measure of risk aversion. *Financial Counseling and Planning Education*, 15(2), 27-38.
  55. Hanna, S.D., M.S. Gutter and X.J. Fan (2001). A measure of risk tolerance based on economic theory. *Financial Counseling and Planning Education*, 12(2), 53-60.
  56. Hariharan, G., Chapman, K. S., & Domian, D. L. (2000). Risk tolerance and asset allocation for investors nearing retirement. *Financial Services Review*, 9, 159–170.
  57. Herrmann, A. F. (2007). People Get Emotional About Their Money. *Performing Masculinity in a Financial Discussion Board*. *Journal of Computer-Mediated Communication*, 12, 499–522.
  58. Hinz, R.P., McCarthy, D.D. and Turner, J. A. (1997). Are Women Conservative investors? Gender Differences in Participant-directed Pension Investments. In M.S. Gordon, O.S. Mitchell and M.M. Twinney (eds.), *Positioning Pensions for the Twenty-first Century*, 91-103, Philadelphia, University of Pennsylvania Press.
  59. Hunter, K. and Kemp, S. (2004). The personality of e-commerce investors. *Journal of Economic Psychology*, 25(4), 529-537.
  60. Jain, D. D., & Mandot, M. N. (2012). Impact of Demographic Factors on Investment Decision of Investors in Rajasthan. *Journal of Arts, Science & Commerce*, III (2(3)), 81 - 92.
  61. Jamshidinaid, B., Chavoshani, M., & Amiri, S. (2012). The impact of demographic and psychological characteristics on the investment prejudices in Tehran stock. *European Journal of Business and Social Sciences*, 1(5), 41-53.
  62. Jianakoplos, N. A. and Bernasek, A. (2006) Financial Risk Taking by Age and Birth Cohort, *Southern Economic Journal*. Vol 72(4), 981-1001.
  63. Kahneman, D. and A. Tversky (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 42(2), 263-289.
  64. Kasilingam, R., & Jayabal, G. (2009). A study on the perception of investors towards small saving schemes. *Paradigm*, 13(2), 1-12.
  65. Keller, C., & Siegrist, M. (2006). Investing in stocks: The influence of financial risk attitude and values-related money and stock market attitudes. *Journal of Economic Psychology*, 27(2), 285-303.
  66. Kesavan, S. K., Chidambaram, V., & Ramachandran, A. (2012). An evidence-based investigation into the implications of socioeconomic factors for private investment decision-making in the context of India. *Investment Management and Financial Innovations*, 9(1), 126 - 136.
  67. Kimball, M. S., Sahm, C. R., & Shapiro, M. D. (2007). Imputing risk tolerance from survey responses (No. w13337). National Bureau of Economic research.
  68. Korniotis, G. M., & Kumar, A. (2011). Do older investors make better investment decisions? *The Review of Economics and Statistics*, 93(1), 244-265.
  69. Kourtidis, D., Sevic, Z. and Chatzoglou, P. (2011). Investors' trading activity: a behavioural perspective and empirical results. *The Journal of Socio-Economics*, Vol. 40(5), 548-557.
  70. Lazzarone, B. G. (1996). The economic well-being of rural Nevada elders. *Proceedings of the 1996 Conference of the Western Region Home Management Family Economics Educators*, 67-74.
  71. Lewellen, W. G., Lease, R. C., & Schlarbaum, G. G. (1977). Patterns of Investment Strategy and Behaviour among Individual Investors. *The Journal of Business*, 50(3), 296 - 333.
  72. Larkin, C., Lucey, B. M., & Mulholland, M. (2013). Risk tolerance and demographic characteristics: Preliminary Irish evidence. *Financial Services Review*, 22(1).
  73. MacCrimmon, K.R. and D.A. Wehrung (1985). A portfolio of risk measures. *Theory and Decision*, 19(1), 1-29.
  74. Mark Ky Mac & Whip (2017). An exploratory study of investment behaviour of investors. *International Journal of Engineering Business Management*. Vol. 9, 1-12.
  75. McInish, T. H. (1982). Individual investors and risk-taking. *Journal of Economic Psychology*, 2, 125–136.
  76. Mittal Manish and Vyas R K (2009). Does Irrationality in Investment Decisions Vary with Income? *The IUP Journal of Behavioral Finance*, 6(1), 26-40.
  77. Morin, R.A. and A.F. Suarez (1983). Risk aversion revisited. *The Journal of Finance*, 38(4), 1201-1216.
  78. Olivares, J.A., D. Diaz and M. Besser (2008). Gender and portfolio choice: Are women more risk averse when selecting pension funds? *Draft Research Paper*. 1-13. Available from; <http://69.175.2.130/~finman/Reno/Papers/Genderchoicejoseolivares.pdf>.
  79. Olga Pak and MonowarMahmood , (2015). Impact of personality on risk tolerance and investment decisions. *International Journal of Commerce and Management*, Vol. 25(4), 370 – 384.
  80. Palsson, A. M. (1996). Does the degree of risk aversion vary with household characteristics. *Journal of Economic Psychology*, 17, 771–787.
  81. PratibhaChaurasia (2017). A Study of Investment Preferences of Investors. *International Journal of Application or Innovation in Engineering & Management*. Vol. 6(7), 29-36.
  82. Powell, M., & Ansic, D. (1997). Gender differences in risk behaviour in financial decision-making: an experimental analysis. *Journal of Economic Psychology*, 18, 605–628.
  83. *Psychology*, Vol. 25 No. 4, pp. 529-537.
  84. Riley, W. and K. Chow (1992). Asset allocation and individual risk aversion. *Financial Analysts Journal*, 48(6), 32-37.
  85. Roszkowski, M. J., Snelbecker, G. E., & Leimberg, S. R. (1993). Risk-tolerance and risk aversion. In S. R. Leimberg, M. J. Satinsky, R. T. LeClair, & R. J. Doyle, Jr. (eds.), *the tools and techniques of financial planning*, 4th ed., 213-225. Cincinnati, OH: National Underwriter.
  86. Schooley, D.K. and D.D. Worden (1996). Risk aversion measures: Comparing attitudes and asset allocation. *Financial Review*, 5(2), 87-99. *Asian Economic and Financial Review*, 2015, 5(4), 601-623
  87. Schubert, R., Brown, M., Gysler, M. and Brachinger, H. W. (1999). 'Financial Decision- Making: Are Women Really More Risk-Averse?' *AEAPapers and Proceedings*, 89 (2), 381-385.
  88. Selcuk, E. A., Altinoklar, A. E. A., & Aydin, G. K. (2010). Financial risk tolerance: scale development and analysis of determinants. *Journal of American Academy of Business*, Cambridge, 15(2), 89-97.

89. Slovic, P. (1972). Information processing, situational specificity, and generality of risk taking behavior. *Journal of Personality and Social Psychology*, 22, 128–134.
90. Strydom, B., Christison, A. and Gokul, A. (2009). Financial Risk Tolerance: A South African Perspective. School of Economics & Finance, University of KwaZulu- Natal. Working Paper No. 01-2009.
91. Sung, J., & Hanna, S. (1996). Factors related to risk tolerance. *Financial Counsel and Planning*, 7, 11–2.
92. Von Neumann, J. and Morgenstern, O. (1944). *Theory of Games and Economic Behaviour*. Princeton University Press, Princeton, NJ.
93. Wallach, M. M. and N. Kogan (1961). Aspects of Judgment and Decision Making: Interrelationships and Changes with Age. *Behavioral Science*, 6, 23–26.
94. Wang, H., & Hanna, S. (1997). Does risk tolerance decrease with age? *Financial Counseling and Planning*, 8, 27–32.
95. Wärneryd, K. E. (1996). Risk attitudes and risky behavior. *Journal of economic psychology*, 17(6), 749-770.
96. Wärneryd, K.-E. (2001). *Stock-market psychology. How people value and trade stocks*. Cheltenham, UK: Edward Elgar.
97. Wood, R., & Zaichkowsky, J. L. (2004). Attitudes and trading behavior of stock market investors: A segmentation approach. *The Journal of Behavioral Finance*, 5(3), 170-179.
98. Young, S., Gudjonsson, G., Carter, P., Terry, R. and Morris, R. (2012). Simulation and risk-taking and its relationship with personality. *Personality and Individual Differences*, 53(3), 294-299.